

Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Neutron Activation Diagnostics in Deuterium Gas-Puff Experiments on the 3 MA GIT-12 Z-Pinch¹ J CIKHARDT, D KLIR, K REZAC, B CIKHARDTOVA, J KRAVARIK, P KUBES, O SILA, FEE CTU in Prague, Czech Republic, A V SHISHLOV, R K CHERDIZOV, F I FURSOV, V A KOKSHENEV, N E KURMAEV, A YU LABETSKY, N A RATAKHIN, IHCE, Tomsk, Russia, G N DUDKIN, A A GARAPATSKY, V N PADALKO, V A VARLACHEV, NRTPU, Tomsk, Russia, K TUREK, NPI ASCR, Prague, Czech Republic — The experiments with a deuterium z-pinch on the GIT-12 generator at IHCE in Tomsk were performed in the frame of the Czech-Russian agreement. A set of neutron diagnostics included scintillation time-of-flight detectors, bubble detectors, and several kinds of threshold nuclear activation detectors in the order to obtain information about the yield, anisotropy, and spectrum of the neutrons produced by a deuterium gas-puff. The average neutron yield in these experiments was of the order of 10^{12} neutrons per a single shot. The energy spectrum of the produced neutrons was evaluated using neutron time-of-flight detectors and a set of neutron activation detectors. Because the deuterons in the pinch achieve multi-MeV energies, non-DD neutrons are produced by nuclear reactions of deuterons with a stainless steel vacuum chamber and aluminum components of diagnostics inside the chamber. An estimated number of the non-DD was of the order of 10^{11} .

¹GACR (Grant No. 16-07036S), CME (Grant Nos. LD14089, LG13029, and LH13283), MESRF (Grant No. RFMEFI59114X0001), IAEA (Grant No. RC17088), CTU (Grant No. SGS 16/223/OHK3/3T/13).

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Date submitted: 14 Jul 2016

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